December 30, 2019

OPPT Docket
EPA Docket Center (EPA/DC) (28221T)
U.S. Environmental Protection Agency
1200 Pennsylvania Ave. NW
Washington, DC 20460-0001
Docket ID No. EPA-HQ-OPPT-2019-0437

Via regulations.gov submission

RE: Draft Risk Evaluation of Methylene Chloride

To whom it may concern:

SOCMA appreciates the opportunity to submit comments on the U.S. Environmental Protection Agency's draft risk evaluation of methylene chloride under the Toxic Substances Control Act (TSCA).[1]

SOCMA is the national trade association representing the specialty and fine chemical industry. Founded in 1921, SOCMA represents a diverse membership of chemical companies who manufacture unique and innovative chemistries used in a wide range of commercial, industrial, and consumer products. SOCMA maintains a strong record of member service through programs that maximize commercial opportunities, enhance regulatory and legal compliance, and promote industry stewardship.

Methylene chloride is a ubiquitous high-production volume industrial chemical. It is a choice solvent for the pharmaceutical industry because of its properties, and as such is specified in the manufacture of many drugs regulated by the Food and Drug Administration. It is also widely used in the manufacture of chemicals more broadly, primarily as a solvent, reaction medium or intermediate. It is also highly regulated by EPA and OSHA under other statutes. SOCMA's members thus have a vital interest in seeing that EPA accurately characterizes the risks associated with the chemical's reasonably foreseeable TSCA conditions of use.

As explained below, SOCMA does not believe that the draft risk evaluation does so. First, it devotes extensive attention to use of methylene chloride in the manufacture of pharmaceuticals. That is a non-TSCA use and must necessarily be outside the scope of the risk evaluation. Second, it overstates the risks associated with industrial use of methylene chloride. The OSHA Methylene Chloride Standard limits workplace exposures to methylene chloride to levels that meet EPA's *de minimis* risk level.

The draft risk evaluation's overstatement of the risks of methylene chloride is already discouraging beneficial reclamation of spent methylene chloride and encouraging its incineration, contrary to the goals of the Resource

[1] 84 FR 57866 (October 29, 2019).

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Conservation & Recovery Act (RCRA). EPA should revise the risk evaluation to more accurately characterize methylene chloride's foreseeable TSCA conditions of use and the risks associated with them.

I. The Use of Methylene Chloride to Manufacture Pharmaceuticals is Excluded from TSCA Regulation and Should Not Be Within the Scope of the Risk Evaluation

EPA's authority under TSCA extends to "chemical substances," and thus does not extend to materials that are excluded from the definition of that term. Of particular relevance to this risk evaluation, TSCA defines "chemical substance" to exclude "any food, food additive, drug, cosmetic, or device (as such terms are defined in section 201 of the Federal Food, Drug, and Cosmetic Act) [FFDCA] when manufactured, processed, or distributed in commerce for use as a food, food additive, drug, cosmetic, or device."[2]

The FFDCA defines the word "drug" to mean:

> (A) articles recognized in the official United States Pharmacopoeia, official Homoeopathic Pharmacopoeia of the United States, or official National Formulary, or any supplement to any of them; and (B) articles intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease in man or other animals; and (C) articles (other than food) intended to affect the structure or any function of the body of man or other animals; and (D) *articles intended for use as a component of any article specified in clause (A), (B), or (C).*[3]

The Food & Drug Administration (FDA) has interpreted the term "component" as used in the FFDCA to mean "any ingredient intended for use in the manufacture of a drug product, including those that may not appear in such drug product."[4] In the pharmaceutical and medicinal manufacturing industry, methylene chloride is an "ingredient . . . use[d] in the manufacture of a drug product" and therefore is excluded from the definition of a chemical substance. Therefore it should also be outside of the scope of any risk evaluation conducted under TSCA.

The preamble to EPA's final risk evaluation rule makes this clear:

> Public comment requested that EPA be explicit about what constitutes a chemical substance under TSCA. . . . Chemical substances do not include: . . . any food, food additive, drug, cosmetic, or device (as such terms are defined in section 201 of the Federal Food, Drug, and Cosmetic Act) when manufactured, processed, or distributed in commerce for use as a food, food additive, drug, cosmetic, or device. 15 U.S.C. 2602(2)(B). The list constitutes what is commonly referred to as "non-TSCA uses." . . . EPA may not in a risk management rule under section 6(a) regulate non-TSCA uses.[5]

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[2] 15 U.S.C. § 2602(2)(B)(vi).

[3] 21 U.S.C. § 321(g)(1) (emphasis added).

[4] 21 C.F.R. § 210.3(b)(3).

[5] 82 Fed. Reg. 33735 (July 20, 2017). The risk evaluation rule does provide one exception: "It may be appropriate for EPA to consider potential risk from non-TSCA uses (as identified above) in evaluating whether a chemical substance presents an unreasonable risk, although these uses would not be within the scope of the risk evaluation. . . . The potential risks of non-TSCA uses may help inform the Agency's risk determination for the exposures from uses that are covered under TSCA (e.g., as background exposures that would be accounted for, should EPA decide to evaluate aggregate exposures).[5] EPA said, however, that it "would explain the basis for such consideration in any risk evaluation." The current risk evaluation contains no such discussion – indeed, it states that EPA chose not to conduct an aggregate risk evaluation. See draft risk evaluation at 32, 387.

The problem formulation for the methylene chloride risk evaluation said that EPA would exclude methylene chloride-based extraction of oils, waxes, fats, spices, and hops from the scope of the risk evaluation because these uses meet the definition of a "food additive."[6] But neither the problem formulation, nor the prior scope document,[7] nor the draft risk evaluation, discusses the fact that methylene chloride's use in pharmaceutical manufacture is a non-TSCA use and is not within the scope of the risk evaluation.

To be clear, the exclusion of methylene chloride when used in pharmaceutical manufacturing is not a case of EPA excluding a condition of use. Drugs are not "chemical substances" for purposes of TSCA. Because their manufacture and processing is not a TSCA use, it can never become a condition of use in the first place.

Also, the exclusion of methylene chloride when used in pharmaceutical manufacturing does not just apply to production workers. It also extends to exposure of occupational non-users and even members of the public who might visit a plant or stand at the fence line. The FFDCA exclusion does not terminate until the material stops being regulated by the FDA, which in the case of drug manufacture occurs when and to the extent a material leaves the manufacturing site as waste.

EPA is therefore obligated to revise the draft risk evaluation to exclude all discussion of methylene chloride's use in pharmaceutical manufacturing – except to explain the basis for its exclusion.

II. The Draft Risk Evaluation Overstates the Risks of Methylene Chloride in Chemical Manufacture

A properly-conducted risk evaluation would conclude that the conditions of use associated with the use of methylene chloride in the manufacture of chemicals does not present unreasonable risk. This can be seen both from workplace monitoring data supplied by a SOCMA member and by analysis of the OSHA permissible exposure level (PEL).

A. The Exposure Summary Data Used in the Draft Risk Evaluation are Outdated and Grossly Overestimate Potential Worker Exposure

The draft risk evaluation states that "EPA reviewed workplace inhalation monitoring data collected by government agencies such as OSHA and NIOSH, and monitoring data found in published literature."[8] It also claims that, although "EPA has sought additional data regarding exposures . . . [w]ith the exception of paint and coating removers, EPA has not received information to date to indicate that workplace changes have occurred broadly in particular sectors over the past 40 years."[9]

For example, the draft risk evaluation cites a World Health Organization (WHO) publication for methylene chloride exposures in the pharmaceutical manufacturing industry. The WHO publication (1996b)[10] is actually a

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[6] EPA 740-R1-7016, Problem Formulation of the Risk Evaluation for Methylene Chloride (May 2018) at 21, available at https://www.epa.gov/sites/production/files/2018-06/documents/mecl_problem_formulation_05-31-18.pdf.

[7] EPA 740-R1-7006, Scope of the Risk Evaluation for Methylene Chloride (June 2017), available at https://www.epa.gov/sites/production/files/2017-06/documents/mecl_scope_06-22-17.pdf.

[8] Draft risk evaluation at 107.

[9] *Id*. at 108.

10 World Health Organization, Methylene chloride (2nd ed. 1996).

secondary reference that in turn cites Zahm et al. (1987)[11] and HSE (1992).[12] Zahm (1987) reports methylene chloride exposures that range from 7.1 to 3749 mg/m^3 (on an 8-hr TWA basis) and it appears these data were used by EPA in its risk calculations. The Zahm (1987) report is very old and based on metadata collected at a time when pharmaceutical manufacturing was often done in open vessels. That is no longer the case, and thus data from Zham (1987) are not representative of current practices. Under EPA's TSCA systematic review guidance, these data should be rated "low" for the temporality metric of representativeness (>15 years old).[13] They should not be used for exposure assessment, particularly when more timely (and thus more representative) data are available.

Recent data obtained from a SOCMA member reflect current manufacturing practices. In the table below, we present a comparison of this data (from a modern pharmaceutical manufacturing site) to the data used by EPA in its draft risk evaluation. As can be seen, *there was no instance in which current exposure levels exceeded EPA de minimis risk levels or the PEL (25 ppm = 86.8 mg/m^3).*

	Draft Risk Evaluation			Modern Facility		
	No. Samples	Central Tendency (mg/m^3)	High (mg/m^3)	No. Samples	Central Tendency (mg/m^3)	High (mg/m^3)
8-hr TWA	15	230	3600	24	12.8	52.1

In contrast to Zahm (1987), the other primary source discussed in the WHO study – HSE (1992) – reported methylene chloride exposure data from pharmaceutical manufacturing (0 – 18 mg/m^3, 8-hr TWA) that are consistent with recent data we provided above. EPA should thus rely on this study, and not Zahm (1987), in its final risk evaluation.

As can be seen from the foregoing, in no case were HSE (1992) or modern exposure levels above EPA *de minimis* risk levels or the PEL and thus do not support EPA's conclusion that methylene chloride presents an unreasonable risk of injury to health (workers and occupational non-users).

B. The OSHA Methylene Chloride Standard Protects all Methylene Chloride Workers

While the foregoing discussion applies to pharmaceutical manufacturing, the unit operations involved in pharmaceutical manufacturing are not fundamentally different than those involved in the manufacture of other chemicals using methylene chloride. These data should thus be regarded as broadly representative of other chemical manufacturing. Moreover, any U.S. manufacturing facility that uses methylene chloride must meet the requirements of the OSHA methylene chloride standard[14] or face penalties. It is, therefore, not reasonably foreseeable that employers will ignore the OSHA rule. At a minimum, EPA should use exposure data collected

11 S.H. Zahm Z.P. Stewart & A. Blair, A study of mortality among workers exposed to methylene chloride. Feasibility report. Bethesda, Maryland, US National Cancer Institute (1987).
12 United Kingdom Health and Safety Executive, National exposure data base (1992).
13 EPA 740-P1-8001, Application of Systematic Review in TSCA Risk Evaluations (May 2018), at 103, available at https://www.epa.gov/sites/production/files/2018-06/documents/final_application_of_sr_in_tsca_05-31-18.pdf.
14 29 CFR 1910.1052

from U.S. facilities since the effective date of the methylene chloride standard (April 1997) to characterize current workplace exposures.[15]

Because EPA considers "occupational non-users" as potential receptors in its risk evaluation for the inhalation route-of-exposure, it is relevant to point out that the OSHA methylene chloride standard also requires manufacturing facilities to establish, demarcate, and communicate to non-users a "regulated area wherever an employee's exposure to airborne concentrations of MC exceeds or can reasonably be expected to exceed either the 8-hour TWA PEL or the STEL."[16] Thus, the OSHA standard ensures that "occupational non-users" are not exposed to methylene chloride above the PEL, would not be exposed to MC above the EPA *de minimis* risk levels, and thus would not experience unreasonable risk.

C. OSHA Regulation Requires Compliance with EPA's de minimis Risk Level

The following comparison demonstrates that both OSHA and EPA *de minimis* cancer risk policy levels are achieved at the current OSHA PEL for methylene chloride:

OSHA
Methylene chloride PEL: **25 ppm** (8-hr TWA) [29 C.F.R. § 1910.1052(c)]
Mean risk estimate at the PEL: **1.2 x 10E-3**
OSHA de minimis risk policy level: **1 x 10E-3**

EPA
Methylene Inhalation Unit Risk (IUR): **1.38 x 10E-6 per mg/m^3** (Appendix I Draft Risk Eval for MC)
EPA *de minimis* risk policy level: **1 x 10E-4**
At the OSHA PEL of 25 ppm (86.8 mg/m^3) 8hr-TWA, the risk, based on the EPA IUR, is given by: 1.38 x 10E-6/(mg/m^3) x 86.8 mg/m^3 = **1.2 x 10E-4**

As can be seen, the *de minimis* occupational cancer risk policy levels between OSHA and EPA differ by one order-of- magnitude, exactly as does the OSHA PEL when converted using the EPA inhalation unit risk (IUR). This means that *at the PEL, EPA's "no unreasonable risk" criteria are met for cancer endpoint (and for non-cancer endpoints, for which EPA's risk levels are only exceeded at higher exposures). Thus no unreasonable risk exists in OSHA-compliant manufacturing facilities*.

TSCA Section 9(a) states that, if EPA believes the OSHA methylene chloride standard is not sufficiently protective and may result in unreasonable risk to workers, EPA is required to submit to OSHA a report that describes such risk and specifies the activity or combination of activities that EPA has reason to believe presents such risk. It should be impossible for this circumstance to arise, however, because both OSHA and EPA *de minimis* risk MC exposure levels for all endpoints (cancer and non-cancer, cancer being the most conservative), are consistent with the respective agency *de minimis* risk policy levels since both rely on the same PBPK risk assessment model data.

[15] See 62 Fed. Reg. 1494 (Jan. 10, 1997),
[16] 29 C.F.R. § 1910.1052(e).

III. The Draft Risk Evaluation Is Already Discouraging Recycling of Methylene Chloride

The risk evaluation indicates that roughly 100 million lbs of methylene chloride is used annually as a solvent in pharmaceutical and chemical manufacture.[17] Much of this solvent is recycled and reused. In some cases, this recycling takes place under the remanufacturing exclusion that was added to the definition of solid waste in 2015.[18] In other cases, the methylene chloride is reclaimed by permitted hazardous waste treatment facilities. In either case, enormous volumes of this important industrial chemical are reused rather than being wastefully disposed of. Moreover, the form of disposal that is thus avoided is typically incineration. As EPA is aware, incineration of chlorinated solvents must be carefully conducted to avoid creating dioxins, furans and other products of incomplete combustion. And even complete combustion produces carbon dioxide.

Unfortunately, SOCMA members are already being advised by their recycling vendors that purchasers of reclaimed methylene chloride are moving away from that chemical to other solvents or ingredients due to the draft risk evaluation's overstatement of risks and the potential for regulation of methylene chloride under TSCA Section 6. As a result, these vendors may stop accepting spent methylene chloride, forcing it to be incinerated. While this consideration is not relevant to EPA's risk evaluation,[19] it demonstrates the importance of conducting this evaluation objectively, and using the best available data, so as to avoid creating the appearance of unreasonable risk where it does not in fact exist.

IV. Conclusion

SOCMA appreciates the opportunity to comment on EPA's draft risk evaluation of methylene chloride. We look forward to continued involvement and collaboration with EPA on this and other TSCA implementation efforts. If you have any questions about these comments, please feel free to contact me at jrothstein@socma.org or 571-348-5122.

Respectfully submitted,

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[17] Draft risk evaluation at 40 (~35% of ~264 million lbs).
[18] *See* 40 C.F.R. § 261.4(a)(27). Methylene chloride (dichloromethane) is one of the solvents eligible for this exclusion. *See id*. § 261.4(a)(27)(i).
[19] *See* 15 U.S.C. § 2605(b)(4)(A)(risk evaluations to be conducted "without consideration of . . . nonrisk factors").